

AMENDMENTS TO THE DRAWINGS

Attached is 1 replacement drawing sheet including changes made to the Figure, for review and approval by the Examiner.

Attachments: 1 Replacement Sheet

REMARKS

I. Status of the Claims and the Rejections

The drawing was objected to because the lineweights employed in the Figure were not uniform. Applicants have amended the Figure to include uniform lineweights, and respectfully request that this objection be withdrawn.

Claim 1 was objected to for failure to include a transition term, as well as indefiniteness regarding multiple uses of the word "sites." Applicants have amended claim 1 to include the transition term "comprising" and to recite "first sites" and "second sites," thereby overcoming these objections. Claim 11 was rejected for indefiniteness for the use of the term "the introduced air." Applicants note that this term was also used in claims 4 and 5, but applicants have amended these claims in a similar manner as the examiner has suggested. Therefore, applicants respectfully request that these objections and rejections be withdrawn.

Substantively, claims 1-7 were rejected for alleged lack of novelty under 35 U.S.C. § 102 based on Goode U.K. Patent No. GB 954,342 ("Goode"). Claims 8-10 were rejected for alleged obviousness under 35 U.S.C. § 103 based on a combination of Goode and Scheffler U.S. Patent No. 6,306,032 ("Scheffler"). Claims 11 and 12 were rejected for alleged obviousness under 35 U.S.C. § 103 based on a combination of Goode and Best U.S. Patent No. 3,045,983 ("Best").

Applicants respectfully traverse the rejections. Nonetheless, applicants have amended independent claims 1 and 6 to further clarify the subject matter regarded as patentable. Applicants have also: (a) amended claims 2-5, 7-9, 11 and 12; (b) canceled claim 10; and (c) added claims 13 and 14. In view of these amendments and the following remarks, applicants respectfully request reconsideration and allowance.

II. Claims 1-7 are Novel

A. The Claims

Independent claim 1 recites a method for air conditioning a passenger cabin of an aircraft. The method includes "introducing air at a first temperature into the passenger cabin at first sites remote from passengers; and introducing air at a second temperature into the passenger cabin at second sites closer to passengers than the first sites." The method also recites that when cooling is required in the passenger cabin, the first temperature is lower than the second temperature. Claims 2-5 depend from independent claim 1 and recite additional features, such as the air introduced into the passenger cabin including fresh air and engine bleed air, as recited in claim 4.

Independent claim 6 recites a system for air conditioning a passenger cabin of an aircraft. The system includes a first line branching that delivers a first air mixture at a first temperature to a first region of the passenger cabin remote from passengers. The system also includes a second line branching that delivers a second air mixture at a second temperature to a second region of the passenger cabin closer to passengers than the first region. The system further includes first and second valves respectively coupled to the first and second line branching, the first and second valves controlling the first and second temperatures by modifying the amount of hot bleed air added to the respective first and second air mixtures. When cooling is required, the first temperature is lower than the second temperature. Claim 7 depends from independent claim 6 and further recites that the first region is an upper region of the passenger cabin, while the second region is a floor region of the passenger cabin.

B. The Deficiencies of the Cited Prior Art

Goode is directed to an aircraft heating system. As shown in Figures 1 and 2, the aircraft heating system delivers hot bleed air from an aircraft engine (1) through ducts (3, 4) to a

valve (5) that maintains a constant mass flow rate of bleed air (pg. 2, lines 8-10). The constant flow of bleed air is then divided into parallel ducts (6, 7) controlled by respective valves (8, 9) (pg. 2, lines 10-13). The first duct (6) leads to a pair of jet pumps (12) located in a compartment (13) below the floor (14) of the cabin. The jet pumps (12) use the high pressure of the bleed air from the first duct (6) to pull recirculation air from the compartment (13) into a mixture with the bleed air (pg. 2, lines 15-23). This mixture is delivered to a manifold (15) in fluid communication with the compartment (13) and side vents (21) leading to the cabin (pg. 2, lines 23-38). The second duct (7) leads to an air conditioning unit (22) and an overhead manifold (26) in the cabin (pg. 2, lines 39-46). Goode further discloses that the valve (8) moves only between a completely open position and a completely closed position, because when heating is required, the jet pumps (12) require that the bleed air from the first duct (6) be at a high pressure to entrain recirculated air from the compartment (13) (pg. 2, lines 69-93). When no heating is required, the valve (8) is closed so that all bleed air is directed into the second duct (7) (pg. 2, lines 65-69).

The Office Action states that Goode discloses all of the elements of the method of claim 1. Applicants disagree. Claim 1 recites that when cooling is required, air is introduced into the passenger cabin at first and second sites, and that the air at the first site is of a lower temperature than the air at the second site. In contrast, when cooling is required in Goode, the valve (8) leading to the jet pumps (12) is completely closed. By definition, jet pumps do not operate without a supply of high pressure fluid, and this is confirmed by Goode at page 2, lines 90-92: "the jet pumps or ejectors 12 require that high pressure air always be available." Consequently, the jet pumps (12) do not introduce any flow of air into the manifold (15) and the side vents (21) when the valve (8) is closed. Thus, Goode clearly fails to disclose introducing air at two sites in a passenger cabin when cooling of the passenger cabin is required, as recited in claim 1.

For at least these reasons, claim 1 is allowable over Goode. Claims 2-5 depend from independent claim 1 and recite unique combinations of features also not disclosed by Goode. Applicants respectfully request that the rejection of claims 1-5 be withdrawn.

The Office Action states that Goode discloses all of the elements of the system of claim 6. Claim 6 recites first and second line branching that respectively deliver first and second air mixtures at first and second temperatures to the passenger cabin. Additionally, claim 6 includes first and second valves coupled to the first and second line branching to control the first and second temperatures by modifying the respective amounts of hot bleed air added to the first and second air mixtures. As discussed above, the system of Goode completely closes the second valve (8) leading to the jet pumps (12) when cooling is required in the cabin. Thus, Goode clearly does not disclose a system where first and second air mixtures are delivered to the cabin at different temperatures when cooling is required, as recited in claim 6.

For at least these reasons, claim 6 is novel over Goode. Claim 7 depends from independent claim 6 and recites a unique combination of features also not disclosed by Goode. Thus, claim 7 is also novel over Goode. Applicants respectfully request that the rejection of claims 6 and 7 be withdrawn.

III. Claims 8, 9, 11 and 12 are Not Obvious

A. The Claims

Claims 8 and 9 depend from independent claim 1 and recite additional features of the air conditioning system. For example, claim 8 recites that the first line branching is connected to at least one feed line for temperature-controlled fresh air and recirculated air, and is also connected to at least one feed line for hot engine bleed air.

Claims 11 and 12 depend on independent claims 1 and 6, respectively, and recite additional features of the air conditioning method and system. More specifically, claims 11 and 12 recite that the air introduced into the passenger cabin includes an adjustable amount of hot engine bleed air determined by temperature measurements of the passenger cabin.

B. The Deficiencies of the Cited Prior Art

As discussed previously, claim 1 is allowable over Goode because Goode fails to teach a method or system of providing two separate air flows of different temperatures into a cabin when cooling is required. With reference to claims 8 and 9, Scheffler is cited only for the teaching of a separate recirculation air duct connected with an air supply duct. Scheffler fails to teach providing two separate flows into a cabin when cooling is required, and therefore fails to overcome the deficiencies of Goode with respect to claim 1.

Thus, even if these references were combined (and applicants do not concede that they are combinable), the resulting system would still be deficient. For at least these reasons, claims 8 and 9, which depend from claim 1, are allowable over the combination of Goode and Scheffler. Applicants respectfully request that the rejection of claims 8 and 9 be withdrawn.

With reference to claims 11 and 12, the Office Action admits that Goode does not disclose providing an adjustable amount of engine bleed air according to temperature measurements in the passenger cabin (Office Action, pg. 10). However, the Office Action turns to Best, which discloses a valve (48) and a conduit (46) that deliver a controlled amount of hot bleed air directly to an aircraft cabin (16) (*see* Figure 1). The Office Action claims that it would have been obvious to control the amount of engine bleed air coming into the system by replacing the valve (5) in the collection ducts (3, 4) of Goode with the adjustable valve (48) from Best "in order to more accurately control the temperature of the passenger cabin." This is incorrect.

Goode explicitly teaches that the valve (5) provides a constant mass flow rate of hot bleed air into the parallel ducts (6, 7) (pg. 2, lines 3-11). This constant mass flow rate is important because when heating is required, the valve (8) in the first duct (6) must be left completely open to provide the jet pumps (12) with fluid at a sufficiently high pressure to induce flow into the cabin through side vents (21) (pg. 2, lines 86-93). Changing the valve (5) into an adjustable valve would be equivalent to allowing the valve (8) in the first duct (6) to be partially closed, which prevents the proper operation of the jet pumps (12). Therefore, Goode clearly teaches away from the modification proposed by the Office Action, because making the valve (5) adjustable would undermine the operation of the Goode system.

The Office Action fails to describe an objective basis for combining these two references, and also fails to establish that the purported combination would work. For at least these reasons, claims 11 and 12, which depend from respective claims 1 and 6, are allowable over the combination of Goode and Best. Applicants respectfully request that the rejection of claims 8 and 9 be withdrawn.

IV. New Claims 13 and 14 are Allowable

Claims 13 and 14 depend from independent claims 1 and 6, respectively. Claims 13 and 14 each recite that when heating is required in the passenger cabin, the first temperature (of the first air mixture delivered to first sites remote from passengers) is always higher than the second temperature (of the second air mixture delivered to second sites closer to passengers). As discussed above, claims 1 and 6 are allowable over Goode because Goode fails to disclose the introduction of two air flows into a passenger cabin when cooling is required. Claims 13 and 14 are allowable over Goode for at least this reason.

Furthermore, Goode fails to disclose that the air delivered through the overhead manifold (26) is always at a higher temperature than air delivered through the side vents (21). Therefore, claims 13 and 14 are allowable over Goode for at least this additional reason. Applicants respectfully request that claims 13 and 14 be allowed without delay.

V. Conclusion

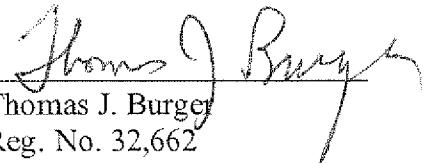
Based on the amendments to the claims and these remarks, Applicants respectfully asserts that all present claims are in condition for allowance, and respectfully requests an allowance without further delay.

It is believed that no fee is due for this filing. If any fee is deemed due, consider this as an authorization to charge Deposit Account 23-3000 therefore.

Respectfully submitted,

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Date


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